



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

36. "*Elements of Plant Anatomy*." Ginn & Co. Boston. 1895.
37. Bull. Torr. Bot. Club, 23: 278-281. 1896. "*What is meant by Stem and Leaf*."
38. Bull. Torr. Bot. Club, 24: 214. 1897. Review of T. Chalkley Palmer, "*Demonstration of Absorption of Carbon Dioxide and of the Generation of Oxygen by Diatoms*." (Proc. Acad. Nat. Sci. Phila. 1897.)

## Studies in the Botany of the Southeastern United States.—X.

By JOHN K. SMALL.

### THE GENUS *TRADESCANTIA* IN THE SOUTHERN STATES.\*

Six years' experience with *Tradescantia*, both in the field and in the herbarium, has convinced me that there is something fundamentally wrong in the several existing treatments of the genus. Since I became interested in the forms occurring in the Southern States Dr. J. N. Rose has arranged to monograph the North American Commelinaceae and I publish these notes with his knowledge and consent.

Linnaeus described a single North American species, namely, *T. Virginiana*.† Of American authors, Walter,‡ Michaux,§ Pursh,|| Elliott¶ and Darby,\*\* each described two species, while Chap-

---

\* I have had the privilege of examining material in the herbaria of Lafayette College, through Professor Thos. C. Porter, and of Franklin and Marshall College, through Professor J. S. Stahr. Professor S. M. Tracy has sent me specimens at various times. I have also received material from regions beyond the area with which this paper is concerned, from Mr. B. F. Bush, Rev. E. J. Hill and Rev. J. M. Bates.

† Sp. Pl. 288.

‡ Fl. Car. 119.

§ Fl. Bor. Am. 119.

|| Fl. Am. Sept. 218.

¶ Bot. S. C. & Ga. 380-381.

\*\* Bot. S. States, 547-548.

man\* added a third, *Tradescantia pilosa*. With the exception of Walter all these authors used the same two specific names, applying Ventenat's *Tradescantia rosea* properly and making *Tradescantia Virginiana* elastic enough to embrace everything else savoring of *Tradescantia* that existed in their respective regions. Walter applied the name *Virginica* not to the Linnaean type, but to the form that Ventenat later described as *Tradescantia rosea* and proposed the name *cristata* for one of the larger forms which most authors thought was the real *Tradescantia Virginiana* of Linnaeus, but judging from Walter's description I am inclined to think he had in mind a later described species.

Rafinesque's work on the southern *Tradescantias* must needs be mentioned. This eccentric author described no less than twenty-six species and varieties in eastern North America, thus treating the genus from the standpoint of extreme segregation just as the authors mentioned above treated it from the standpoint of extreme aggregation. Rafinesque apparently founded a species on nearly every specimen he collected and of course his work needs extensive reduction, but to what previously described species to refer many of the Rafinesquian names is a difficult task. However, several of the forms he described, prove to be excellent species, for example, *Tradescantia brevicaulis* which Dr. Morong restored several years ago † and *Tradescantia reflexa* which I restore in this paper.

An attempt to segregate the material in an herbarium on the lines laid down in the several different works above referred to must at once prove futile and not until we recognize the several segregates into which the *Virginiana* type naturally separates itself can we hope for a clear or scientific interpretation of the group from a specific standpoint.

#### Key to the Species.

Umbel-like cymes peduncled, subtended by small or minute bracts.

Leaves ovate or ovate-lanceolate; sepals 2-3 mm. long. 1. *T. Floridana*.

Leaves linear or almost filiform; sepals 5-6 mm. long. 2. *T. rosea*.

Umbel-like cymes sessile, subtended by large leaf-like bracts.

Leaves linear or linear-lanceolate, 12-50 times longer than broad, more or less involute; plants glabrous, villous, hirsute or glandular.

---

\* Fl. S. States, 498.

† Bull. Torr. Club, 20: 470.

Stems abbreviated, 1 to rarely 10 cm. long; bracts longer than the leaves.

3. *T. brevicaulis*.

Stems elongated, 20–100 cm. long; bracts shorter than the leaves.

Sheaths not imbricated at the base of the stem.

Stem glabrous; pubescence, when present on other organs, villous and silvery.

Plant bright green; pedicels 2.5–5 cm. long, villous; sepals 12–18 mm. long, villous, about twice as long as broad, becoming membranous.

4. *T. Virginiana*.

Plants glaucous; pedicels 2–2.5 cm. long, glabrous; sepals 8–10 mm. long, with a tuft of hairs at the apex, 3–4 times as long as broad, leathery.

5. *T. reflexa*.

Stem hirsute; pubescence brownish.

6. *T. hirsuticaulis*.

Sheaths imbricated for 5–20 cm. at the base of the stem.

Plant densely glandular; sepals linear-lanceolate or linear-oblong, 1 cm. long.

7. *T. longifolia*.

Plant glabrous except the villous sheaths at the base of the stem; sepals ovate or oblong, 7 mm. long.

8. *T. foliosa*.

Leaves lanceolate or narrowly lanceolate, 4–10 times longer than broad, flat; plants glabrate, pilose or villous.

Stem clothed with long villous hairs.

9. *T. comata*.

Stems glabrous, or pilose.

Plant usually slender; stems mostly strict; umbels solitary and terminal or on corymbd branches; flowers 2–2.5 cm. broad; species Alleghenian.

10. *T. montana*.

Plant usually stout; stems mostly flexuous; umbels terminal and sessile in the upper axils; flowers 2.5–3 cm. broad; species campestrian.

11. *T. pilosa*.

# 1. TRADESCANTIA FLORIDANA S. Wats.

*Tradescantia Floridana* S. Wats. Proc. Am. Acad. 17: 381. 1882.

Perennial by creeping stems, slender, nearly glabrous, bright green. Stems procumbent, more or less matted, flaccid, 1–3 dm. long, rooting at the lower nodes; leaves ovate or ovate-lanceolate, 1–2 cm. long, thinnish, acute, ciliolate; sheaths funnelform, minutely roughened, fringed with long white cilia; cymes solitary or 2 together, terminal, their peduncles .5–1.5 cm. long, subtended by ovate or ovate-lanceolate bracts; pedicels filiform, 2–6 mm. long, villous and somewhat glandular; sepals ovate, about 2–3 mm. long, acutish, purple, pubescent; petals white; filaments glabrous; anther-cells contiguous; capsules oval, nearly 2 mm. long, glabrous.

Damp shady places, peninsular Florida: Miss Reynolds; Merritt's Island, A. H. Curtiss, 2995 (two collections under the one

number); Sumpter county, J. D. Smith; Indian River, W. M. Canby.

## 2. TRADESCANTIA ROSEA Vent.

*Tradescantia Virginica* Walt. Fl. Car. 119. 1788. Not *T. Virginiana* L.

*Tradescantia rosea* Vent. Hort. Cels, *pl.* 24. 1800.

Perennial by rootstocks, slender, nearly glabrous, bright green. Stems erect or nearly so, often densely tufted, 1–5 dm. tall, usually simple; leaves narrowly linear or nearly filiform, 1–3 dm. long, flat or involutely folded, acuminate, sometimes surpassing the peduncles; sheaths cylindric or funnelform, .5–1 cm. long, fringed with long white cilia; cymes usually solitary, or sometimes 2 together, terminal, their peduncles 8–15 cm. long, subtended by linear bracts; pedicels 1–1.5 cm. long, glabrous; sepals lanceolate or ovate-lanceolate, 5–6 mm. long, acutish, petals pink or rose-color, orbicular-oblong, obtuse; filaments glabrous, anther-cells contiguous; capsules subglobose, 4–5 mm. in diameter.

Sandy soil, Maryland to Missouri, south to Florida and Texas. Spring and summer.

## 3. TRADESCANTIA BREVICAULIS Raf.

*Tradescantia brevicaulis* Raf. Atl. Journ. 150. 1832.

*Tradescantia pumila* Raf. New Fl. Part 2, 86. 1836.

*Tradescantia Virginica* var. *villosa* S. Wats.; Wats. & Coult. in A. Gray, Man. Ed. 6, 539. 1890.

Perennial by a cluster of slender roots, low, stoutish, more or less villous, bright green. Stems solitary or usually clustered, erect, almost wanting or 1–10 cm. tall, simple; leaves linear or narrowly linear, 1.5–3 dm. long, flattish, acute or sometimes rather obtuse, sheaths 1–2.5 cm. long, mostly imbricated; involucre of 2 nearly equal leaf-like bracts which are longer and broader than the leaves; pedicels stoutish, 3.5–5.5 cm. long, villous; flowers mostly purplish-blue, 5–15 in an umbel-like cyme, about 2 cm. broad; sepals ovate or oblong-ovate, 10–11 mm. long, obtuse; petals suborbicular, obtuse, delicately nerved; mature capsule not seen.

Hillsides and woods, Illinois to Missouri and Kentucky. May to June.

## 4. TRADESCANTIA VIRGINIANA L.

*Tradescantia Virginiana* L. Sp. Pl. 288. 1753.

*Tradescantia rupestris* Raf. Atl. Journ. 150. 1832.

Perennial by a cluster of rather thick white or yellowish roots, stout or stoutish, glabrous or nearly so, bright green. Stems

usually clustered, erect; 2 dm. or mostly 3-4 dm. tall, nearly straight, simple; leaves linear or linear-lanceolate, 1 or usually 2-7 dm. long, acuminate, more or less curved, nearly flat or involutely folded; sheaths 1-3 cm. long, sometimes slightly ciliate; involucre of 2 lanceolate or linear-lanceolate nearly equal or very unequal leaf-like bracts which are usually much smaller than the leaves; flowers dark blue or purplish or rarely white, large, 3-4 cm. broad; pedicels 2.5-5 cm. long, sepals large, elliptic, ovate or ovate-lanceolate, 12-18 mm. long, obtuse or acutish, villous with long non-glandular hairs about twice as long as broad, becoming membranous; petals sub-orbicular, 1.4-2 cm. in diameter; capsule 5-7 mm. long, glabrous; seeds oblong, about 3 mm. long.

Hillsides and along streams, New York and Illinois, Virginia and Arkansas. May-June.

#### 5. *TRADESCANTIA REFLEXA* Raf.

? *Tradescantia canaliculata* Raf. Atl. Journ. 150. 1832.

*Tradescantia reflexa* Raf. New Fl. Part 2, 87. 1836.

*Tradescantia reflexa* var. *drepisia* Raf. New Fl. Part 2, 88. 1836.

Perennial by a rootstock and numerous rather delicate roots, slender or stout, glabrous, glaucous. Stems solitary, erect, 4-9 dm. tall, nearly straight, commonly much branched, sometimes purplish; leaves linear, 2-5 dm. long, straight, or somewhat curved, long attenuate; sheaths large, 1-3 cm. long, glabrous or rarely slightly villous; involucre of 2 unequal finally reflexed leaf-like bracts; flowers blue, or often red, 2-3 cm. broad, the umbel-like cymes at maturity usually dense; pedicels slender, 2-2.5 cm. long, crowded; sepals oblong or elliptic, apparently lanceolate by the involute edges, 8-10 mm. long, hooded, mostly with a tuft of hairs at the apex, sometimes glabrate, 3-4 times as long as broad, leathery; petals suborbicular; capsule ovoid or oblong, 5-6 mm. long, glabrous, constricted above the middle; seeds oblong, 3 mm. long, with irregular transverse ridges.

In sandy or clay soil, in the Gulf States and from South Carolina to Indian Territory and Texas; ascends the Mississippi Valley to Minnesota. May-August.

South Carolina: Elliott; Georgia: Small; Florida: Garber, Nash; Alabama: Earle and Underwood; Mississippi: Tracy; Texas: Drummond; Indian Territory: Palmer.

Conspicuous on account of its tall and proportionately slender habit, its narrow elongated leaves and usually very dense flower clusters. I have adopted the specific name *reflexa* of Rafinesque

because the original description agrees very well with the specimens I have collected in the Southern States and the original locality lies within the bounds of the range shown by my specimens. The plant is usually glabrous except a more or less distinct tuft of hairs near the apex of the sepals.

6. *TRADESCANTIA HIRSUTICAULIS* n. sp.

Perennial by a cluster of coarse elongated (1–2.5 dm.) roots, slender, hirsute throughout with long brownish hairs, or partially glabrous above, otherwise bright green. Stems several together, erect or nearly so, 3–4 dm. tall, leafy throughout, densely hirsute, simple; leaves narrowly linear, 2–3 dm. long, more or less curved, involutely folded, less densely hirsute than the stem; sheaths rather pale, 1–2.5 cm. long, conspicuously ribbed; involucre of two linear very unequal leaf-like bracts which are somewhat smaller than the stem leaves; pedicels slender, 2–2.5 cm. long; flowers purple, large, 2.5–3 cm. broad; sepals variable in the same flower, ovate or lanceolate, 9–15 mm. long, rather villous and somewhat glandular; petals suborbicular, broader than long and undulate; mature capsule not seen.

Sandy places, Georgia to Florida; occurs at 400 meters on Stone Mountain. May to July.

Florida: Chapman, Wood; Georgia: Stone Mountain, Small. A very distinct and beautiful species related to *Tradescantia reflexa* but much more slender in habit. Remarkable for the abundant development of brownish hirsute pubescence on the stem, leaves and inflorescence. The flowers are larger and of a deeper blue than those of *Tradescantia reflexa*.

7. *TRADESCANTIA LONGIFOLIA* n. sp.

Perennial by a short rootstock and slender roots which are 1 dm. or rarely 2 dm. long; rather slender, glandular-pilose, dull green. Stems solitary, erect or assurgent, 4–5 dm. tall, strict, simple or sparingly branched above, densely glandular; leaves linear or nearly so, chiefly basal or confined to the lower part of the stem, 2–4 dm. long, even the lower ones surpassing or almost equalling the stem, gradually narrowed from near the base, flat, densely glandular-pilose like the stem; sheaths 2–2.5 cm. long, ciliate with long hairs, imbricated below; involucre of two small leaf-like bracts, or one often almost wanting; pedicels stoutish, 1.5–2 cm. long; flowers deep blue, 2.5–3 cm. broad; sepals linear-lanceolate or linear-oblong, 1 cm. long, obtuse,  $1\frac{1}{2}$  to 2 times shorter than the pedicels; filaments at length as long as the sepals,

spirally twisted; capsule oblong, 8–9 mm. long, glandular-pilose; seeds oblong or ovoid, more or less flattened, gray, conspicuously marked with irregular transverse ridges.

Sandy soil in pine barrens, Florida: Curtiss, 2996 and 4680; Nash, 1574.

Many *Tradescantias* possess more or less glandular pubescence, but in this Floridian species, we find the whole plant covered with a short glandular pubescence which extends even to the petals. Its affinities are with *Tradescantia hirsuticaulis*, from which it differs primarily in the pubescence and the broader and elongated leaves which are chiefly confined to the base of the stem which they either surpass or nearly equal. The sepals are narrow and conspicuously elongated.

#### 8. TRADESCANTIA FOLIOSA n. sp.

Perennial by a cluster of slender much elongated (more than 3 dm.) roots, rather stout, glabrous above, villous at the base, dull green. Stems solitary, erect, 4–7 dm. tall, simple or nearly so, very leafy near the base, glabrous or glabrate; leaves narrowly linear, 2–6 dm. long, nearly equalling or surpassing the stem, long-attenuate, crowded at the base; sheaths large, often densely villous, imbricated and sheathing the stem for 1–2 dm., prominently ribbed; involucre of 3 unequal leaf-like bracts; pedicels slender, 1–1.5 cm. long; flowers blue, about 2 cm. broad, the cymes at maturity dense; sepals ovate or oblong, about 7 mm. long, obtuse, two strongly hooded and with a tuft of hairs near the apex, one scarcely hooded and nearly glabrous at the apex; capsule oblong, 5–6 mm. long, glabrous; seeds irregular, 2–2.5 mm. long, not much longer than broad.

In clay soil, chiefly on hummocks, eastern and southern Florida: Keeler; Nash, 610 in part. May to June.

As in the case of *Tradescantia longifolia*, the leaves of this plant are crowded toward the base of the stem but they are much more numerous. The sheaths are loose, densely imbricated and villous, with very long delicate hairs. The upper part of the plant is apparently glaucous, the flowers are small, the sepals short and the fruiting calyx small and plump. The plant is destitute of glandular pubescence.

#### 9. TRADESCANTIA COMATA n. sp.

Perennial, stoutish, pubescent with long villous hairs. Stems erect or ascending, 3–5 dm. tall, simple or sparingly branched,



very villous; leaves lanceolate or narrowly-lanceolate, 1–3 dm. long, acute or short-acuminate, ciliate, villous on both surfaces or glabrate above, somewhat narrowed near the base; sheaths villous like the stem, 1–3 cm. long; involucre of 1–2 bracts like the leaves but smaller; flowers blue, 1.5–2 cm. broad; pedicels usually densely villous; sepals oblong or elliptic-oblong, 7–9 mm. long, villous, acute or acutish; capsules oblong, 4–5 mm. long, glabrous; seeds oblong, 3 mm. long, tuberculate-ridged.

Upper districts and mountains of Georgia; Chapman, two collections.

Allied to *Tradescantia montana*, but readily distinguished by the conspicuous villous pubescence.

#### 10. TRADESCANTIA MONTANA Shuttl.

*Tradescantia montana* Shuttl.; Britton, in Britton & Brown, Ill. Fl. 1: 377. 1896.

Perennial by a cluster of elongated roots, slender, nearly glabrous, dark green. Stems usually solitary, erect, 3–7 dm. tall, straight or nearly so, simple or sparingly branched above; leaves narrowly lanceolate or linear-lanceolate, 1–3 dm. long, usually minutely pubescent, or rarely glabrate, acuminate, flat; sheaths 1–2 cm. long, ciliate; involucre of two lanceolate leaf-like bracts, one of which is at least one-half smaller than the other; flowers blue, small, 2–2.5 cm. broad; pedicels slender, 1–1.2 cm. long; sepals ovate or oblong, sometimes apparently lanceolate by the involute edges, 5–6 mm. long, pilose or villous, obtuse, hooded, often minutely glandular; petals sub-orbicular or orbicular-ovate; capsule oblong or oval, 5–6 mm. long, glabrous, or pilose especially above the middle; seeds oval-oblong, 3 mm. long, irregularly tuberculate and coarsely granular.

Sandy hillsides in the Allegheny mountains from Virginia to North Carolina and South Carolina; ascends to 1200 meters in North Carolina. June to August.

Virginia: Britton, Small; North Carolina: Rugel, Porter, Small & Heller; South Carolina: Small.

*Tradescantia montana* appears to be strictly Alleghenian in its distribution. It is more closely related to *Tradescantia pilosa* than to any other species, but it is smaller throughout, with a straight or almost straight stem, narrower and thinner leaves and usually less pubescence.

Last July I found this plant abundantly on Paris mountain, near Greenville, South Carolina. It grew on the upper slopes and

top of the mountain, chiefly in thickets. The species is apparently a late bloomer; although the season was far advanced the plants had not produced any capsules.

11. *TRADESCANTIA PILOSA* J. G. C. Lehm.

*Tradescantia pilosa* J. G. C. Lehm. Nov. Act. Leop. 14: Part 2, 822. pl. 48. 1828.

*Tradescantia flexuosa* Raf. Atl. Journ. 150. 1832.

*Tradescantia axillaris* Raf. New Fl. Part 2, 87. 1836.

*Tradescantia axillaris* var. *flexuosa* Raf. New Fl. Part 2, 87. 1836.

*Tradescantia Virginica* var. *flexuosa* S. Wats.; Wats & Coult. in A. Gray, Man. Ed. 6: 539. 1890.

Perennial, stout, pilose and more or less puberulent, dull green; stems erect or ascending, 4–8 dm. tall, flexuous, often puberulent, or glabrate, leafy to the top, simple or sparingly branched; leaves lanceolate or sometimes rather narrowly lanceolate, 1–2.5 dm. long, acuminate, dark green above, paler beneath; sheaths 1–1.5 cm. long, ciliate, inconspicuously ribbed; involucre of 2–3 bracts similar to the leaves, one about twice as long as the others; pedicels normally slender, 1.5–2 cm. long, villous-pilose, or often glabrate; flowers pale blue or deep blue, large, 2.5–3 cm. broad, the cymes usually crowded at maturity; sepals ovate or oblong, about 7 mm. long, apparently lanceolate by their involute edges, two strongly hooded, the third not hooded, mostly villous-pilose; petals ovate-orbicular, obtuse; capsule globose-oblong, 5 mm. long, constricted at the middle, pilose at the summit; seeds oblong or ovoid, 2–3 mm. long.

Thickets and shady hillsides, Ohio to Missouri, south to West Virginia and Tennessee. Naturalized about Bartram's Garden, Philadelphia. May to August.

In size, habit and leaf form, especially in the breadth of the leaves, this is our most conspicuous *Tradescantia*; the lanceolate leaves with their pilose pubescence, the normally flexuous stems and the usually axillary flower-clusters readily separate it from all other species. In range it is campestrian with Kentucky and Tennessee as its center of distribution; it is unknown west of the Mississippi river except in eastern Missouri.